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| APPLICATION NO.        | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------|-------------|----------------------|---------------------|------------------|
| 10/693,242             | 10/24/2003  | Samuel N. Crane JR.  | 9501-71831          | 1380             |
| 23643                  | 7590        | 09/07/2006           | EXAMINER            |                  |
| BARNES & THORNBURG LLP |             |                      | HANDAL, KAITY V     |                  |
| 11 SOUTH MERIDIAN      |             |                      | ART UNIT            |                  |
| INDIANAPOLIS, IN 46204 |             |                      | PAPER NUMBER        |                  |

1764

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/693,242             | CRANE ET AL.        |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | Kaity Handal           | 1764                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/6/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-17, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 12-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Daniel et al. (US 7,014,930 B2).

With respect to claims 12-14, Daniel teaches a plasma fuel reformer (fig. 3, 12) assembly comprising: a plasma fuel reformer having (i) an air/fuel input assembly/fuel injector (fig. 1, 38) (ii) an electrode assembly (fig. 2, 54 & 56) comprising a first electrode (54) and a second electrode (56) that is spaced apart from the first electrode (54) (as illustrated) and (iii) a soot trap/emission abatement device (118) positioned downstream of the electrode assembly (as illustrated in figure 5)/(which is inside plasma reformer 12), and a reformer controller (16) electrically coupled to the air/fuel input assembly/fuel injector (fig. 1, 38) (as illustrated), the controller comprising (i) a processing unit/interface unit (32), and (ii) a memory unit (30) electrically coupled to the processing unit (32) (as illustrated), the memory unit (28) having stored therein a plurality of instruction which, when executed by the processing unit, causes the processing unit (32) to: operate the

air/fuel input assembly so as to advance a first air/fuel mixture with a first air-to-fuel ratio into the plasma fuel reformer (col. 4, lines 57-67), determine if a soot purge of the soot trap is to be performed and generate a purge-soot signal in response thereto, and operate the air/fuel input assembly so as to advance a second air/fuel mixture having a second air-to-fuel ratio greater than the first air-to-fuel ratio into the plasma fuel reformer (col. 13, lines 1-27).

With respect to claims 15-16, Daniel teaches a sensor/pressure sensor (fig. 8, 458) to sense the amount of soot within the soot trap/the pressure drop across the soot trap (col. 17, lines 64-67 and col. 18, lines 1-14), wherein the plurality of instructions, when executed by the processing unit, further causes the processing unit to: generate a soot-content control signal when the amount of soot particulate accumulation within the soot trap reaches a predetermined level (col. 18, lines 1-14), and operate the air/fuel input assembly to advance the second air/fuel mixture in response to generation of the soot-content control signal (col. 18, lines 27-51).

With respect to claim 17, Daniel teaches wherein the plurality of instructions, when executed by the processing unit, further causes the processing unit to: determine when a predetermined period of time has elapsed since soot was last purged from the soot trap, and generate a time-lapsed control signal in response thereto, and operate the air/fuel input assembly to advance the second air/fuel mixture in response to generation of the time-lapsed control signal (col. 18, lines 37-51) and (col. 13, lines 1-27).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel et al. (US 7,014,930 B2) as applied to claim 12 above.

With respect to claims 19-20, Daniel fails to show wherein the fuel reformer comprises a housing defining a reformat gas outlet, and the soot trap is positioned within the housing at a position upstream of the reformat gas outlet and wherein the soot trap with in a conduit fluidly coupled to the fuel reformer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make Daniel's reformer and soot filter/emission abatement device integral (in one housing). Such arrangement does not impart any patentability of claimed apparatus. MPEP 2144 VB.

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*In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) (A claim to a fluid transporting vehicle was rejected as obvious over a prior art reference which differed from the prior art in claiming a brake drum integral with a clamping means, whereas the brake disc and clamp of the prior art comprise several parts rigidly secured together as a single unit. The court affirmed the rejection holding, among other reasons, “that the use of a one piece construction instead of the structure disclosed in [the prior art] would be merely a matter of obvious engineering choice.”); but see *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983) (Claims were directed to a vibratory testing machine (a hard-bearing wheel balancer) comprising a holding structure, a base structure, and a supporting means which form “a single integral and gaplessly continuous piece.” Nortron argued that the invention is just making integral what had been made in four bolted pieces. The court found this argument unpersuasive and held that the claims were patentable because the prior art perceived a need for mechanisms to dampen resonance, whereas the inventor eliminated the need for dampening via the one-piece gapless support structure, showing insight that was contrary to the understandings and expectations of the art.).

### ***Response to Arguments***

#### **Specification**

Objection to the specification made by the examiner is withdrawn due to applicant's amendment.

#### **Prior Art**

Applicant's arguments with respect to the prior art being owned by ArvinMeritor at the time the invention of the subject patent application was made have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Daniel et al. as set forth above.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

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8/30/2006

  
ALEXA DOROSHENK NECKEL  
PRIMARY EXAMINER